AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Previously Presented) A method of generating a single sideband spread spectrum signal, said method comprising:

i) generating a complex spreading signal;

ii) phase-shifting a complex spreading signal in accordance with a Hilbert transform to produce a phase-shifted complex spreading signal;

iii) upconverting the complex spreading signal and the phase-shifted complex spreading signal to a higher frequency to produce the single sideband spread spectrum signal;

iv) bandlimiting one of at least the complex spreading signal or the single sideband spread spectrum signal; and

v) modulating one of the complex spreading signal or the single sideband spread spectrum signal with an input data signal,

wherein the order in which steps ii) to v) are performed is immaterial provided that the phase shifting step is performed before the upconversion step.

2. (Original) A method according to claim 1, in which

the upconverting step comprises the substeps of

modulating a signal of the upconverted complex signal in accordance with the real part of the complex signal combined with the imaginary part of the phase shifted complex signal.

3. (Currently Amended) A method ~~according to claim 1,~~ of generating a single sideband spread spectrum signal, said method comprising:

i) generating a complex spreading signal, in which the complex spreading signal is derived from a sequence defined by the equation

$$\begin{aligned} \alpha_m &= W_N^{m^2/2+qm} && N \text{ even} \\ &= W_N^{m(m+1)/2+qm} && N \text{ odd} \end{aligned}$$

where

$$W_N = e^{-i2\pi r/N}$$

m =0,1,2,…, N-1, q is any integer and the number of sequences of a given length is N;

ii) phase-shifting a complex spreading signal in accordance with a Hilbert transform to produce a phase-shifted complex spreading signal;

iii) upconverting the complex spreading signal and the phase-shifted complex spreading signal to a higher frequency to produce the single sideband spread spectrum signal;

iv) bandlimiting one of at least the complex spreading signal or the single sideband spread spectrum signal; and

v) modulating one of the complex spreading signal or the single sideband spread spectrum signal with an input data signal.

wherein the order in which steps ii) to v) are performed is immaterial provided that the phase shifting step is performed before the upconversion step.

4. (Previously Presented) A method according to claim 1 in which the bandlimiting step is performed prior to the phase shifting step.

5. (Previously Presented) A method according to claim 1 in which the bandlimiting step is performed after the upconversion step.

6. (Previously Presented) A method according to claim 1 in which the modulation step is performed after the upconversion step.

7. (Previously Presented) An apparatus for transmitting a single sideband spread spectrum signal, said apparatus comprising:

a complex spreading signal generator for generating a complex spreading signal:

a phase shifter coupled to receive the complex spreading signal via the complex spreading signal generator and for phase-shifting the complex spreading signal in accordance with a Hilbert Transform to provide a phase-shifted complex-spreading signal;

a complex modulator coupled to receive the complex spreading signal and the phase-shifted complex spreading signal for upconversion thereof to produce the single sideband spread spectrum signal;

a bandlimiting filter for bandlimiting one of at least the complex spreading signal or the single sideband spread spectrum signal; and

a data modulator connected to receive an input data signal for modulating one of the complex spreading signal or the single sideband spread spectrum with the input signal.

8. (Original) An apparatus according to claim 7, in which the bandlimiting filter is a low pass filter connected to receive the output of the complex spreading signal generator.

9. (Original) An apparatus according to claim 7, in which the bandlimiting filter is a band pas filter connected to receive the output of the complex modulator.

10. (Previously Presented) An apparatus according to claim 7, in which the data modulator is coupled to receive a second signal via the complex modulator.

11. (Previously Presented) A method of decoding a single sideband spread spectrum signal, said method comprising:

upconverting a complex spreading signal to a higher frequency; and

demodulating a received signal in accordance with the upconverted complex spreading signal.

12. (Currently Amended) A method ~~according to claim 11,~~ of decoding a single sideband spread spectrum signal, said method comprising:

upconverting a complex spreading signal to a higher frequency, in which the complex spreading signal is derived from a sequence defined by the equation

$$\begin{aligned} \alpha_m &= W_N^{m^2/2+qm} && N \text{ even} \\ &= W_N^{m(m+1)/2+qm} && N \text{ odd} \end{aligned}$$

where

$$W_N = e^{-i2\pi r/N}$$

m = 0,1,2,…, N-1, q is any integer and the number of sequences of a given length being N, and

demodulating a received signal in accordance with the upconverted complex spreading signal.

13. (Previously Presented) An apparatus for decoding a transmitted spread spectrum signal, said apparatus comprising:

a complex spreading signal generator;

a phase shifter connected to receive the complex spreading signal from the complex spreading signal generator;

a complex modulator connected to receive the complex spreading signal from the complex spreading signal generator, connected to receive the phase shifted complex spreading signal from the phase shifter and arranged in operation to upconvert the complex spreading signal; and

a data modulator connected to receive the transmitted signal and the upconverted complex spreading signal and arranged in operation to demodulate the transmitted signal to provide a decoded transmitted signal.